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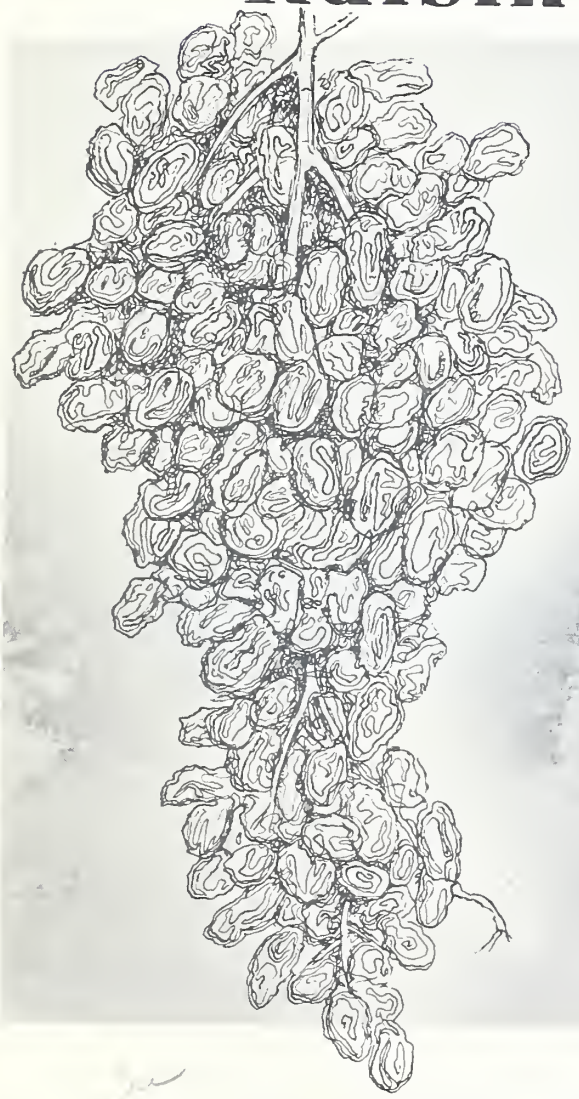
U. S. DEPARTMENT OF AGRICULTURE

# Raisin Marketing



## PRELIMINARY ECONOMIC HIGHLIGHTS

U. S. DEPARTMENT OF AGRICULTURE
Agricultural Marketing Service
Marketing Research Division
Washington, D. C.

## PREFACE

This is an interim or progress report based on a current study of raisin marketing. Its purpose is to inform interested persons concerning the nature of the research and some of the basic trends and findings that seem apparent at this stage of the study. It is important to note that this report necessarily omits, or considers very briefly, certain phases of raisin marketing that have been assigned to later stages of the research.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# RAISIN MARKETING

## Preliminary Economic Highlights

By Norman Townshend-Zellner and Loyd C. Martin
agricultural economists, Market Organization and Costs Branch
Marketing Research Division

## INTRODUCTION

In recent years, the United States has produced almost 40 out of every 100 tons of the raisins and currants produced commercially in the world. The United States raisin industry is entirely within the State of California.

California raisin production is located in the San Joaquin Valley, with Fresno County the dominant producing area. More than 8 out of every 10 of the San Joaquin Valley's bearing acres of raisin variety grapes (Thompson Seedless, Muscat, Sultana, and Zante currant varieties) are concentrated in Fresno, Tulare, and Madera Counties.

California raisins are chiefly sun dried in the vineyard. About 10 percent of the California raisins are mechanically dehydrated. Natural sun drying is possible until a September deadline, when threat of early fall rains makes sun drying risky.

When sun drying is completed, the raisins in natural condition are ready for delivery to the raisin packing plant where major steps in processing involve stemming, cleaning, sorting, seeding (if necessary), and packaging.

## PRODUCTION

The raisin industry as a whole experienced an early period of strong growth and expansion in production followed by a period of stabilization--with a tendency to decline in recent years (fig. 1). Raisin production in 1952-56 averaged 224,000 tons, 9 percent below that of 1945-49, and 4 percent less than that of 1935-39.

### Individual Raisin Varieties

Production of major raisin varieties and types in recent years has shown important differences, highlighted by an increase in bleached types and a substantial decline in varieties other than Thompson Seedless (table 1).

Since 1940, Natural Thompson Seedless raisin and all bleached raisin types combined have constituted almost 95 percent of California raisin production.

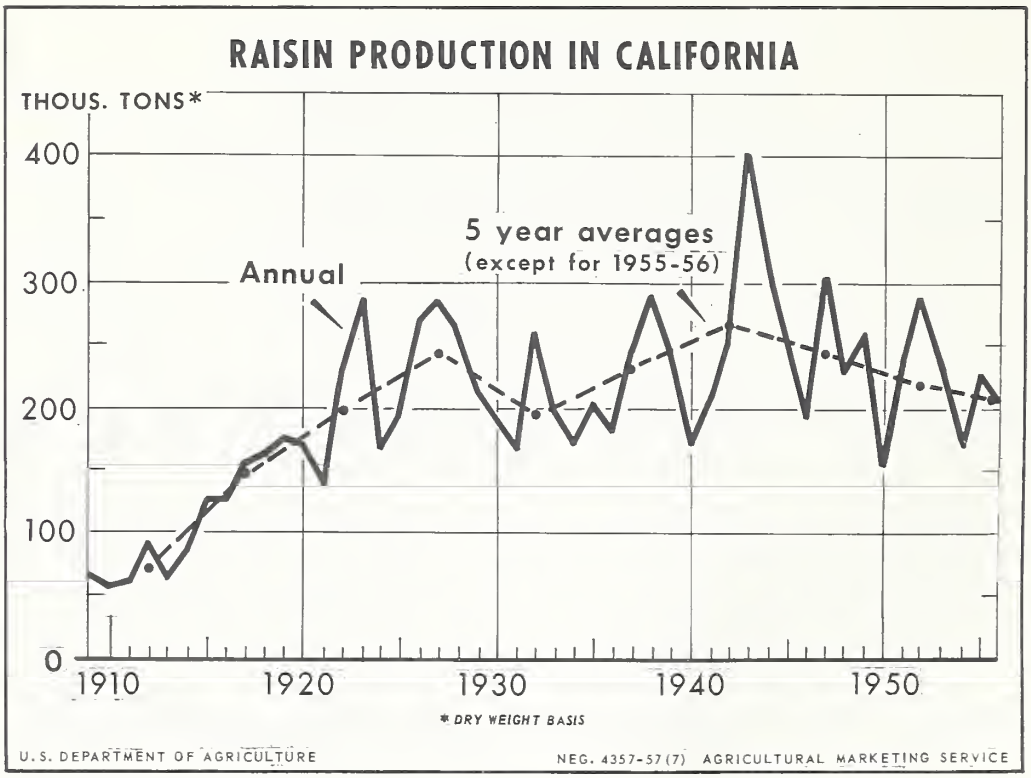


Figure 1

Table 1.--Production of chief raisin varieties and types, dry weight, averages 1940-49 and 1950-55

| Variety or type | 1940-49 1/ | | 1950-55 | | Change, 1950-55 over 1940-49 |
|---|---|---|---|---|---|
| | Quantity | Percentage of total | Quantity | Percentage of total | |
| | Tons | Percent | Tons | Percent | Percent |
| Natural Thompsons | 195,227 | 84.8 | 187,215 | 85.7 | -4.1 |
| Bleached, all types | 16,508 | 7.2 | 17,928 | 8.2 | +8.6 |
| Natural Muscats | 11,574 | 5.0 | 8,473 | 3.9 | -26.8 |
| Natural Sultanas | 2,908 | 1.3 | 1,621 | .7 | -44.3 |
| Natural Zante currants | 3,852 | 1.7 | 3,261 | 1.5 | -15.3 |
| Total | 230,069 | 100.0 | 218,498 | 100.0 | -5.0 |

1/ Excludes 1942, 1943, 1944.

## Comparisons With Related Commodities

The recent decline in raisin production parallels a similar decline in production of California prunes and apricots, and for grapes shipped fresh for juice. However, this is not the production trend in other major raisin-producing countries, nor in California, for deciduous tree fruits and for grapes used for commercial crush, fresh table, and canning (table 2).

Table 2.--Comparison of California raisin production with production of selected commodities, averages 1935-39 and 1950-54

| Commodity | Weight basis | Production | | |
|---|---|---|---|---|
| | | 1935-39 | 1950-54 | Change, 1950-54 over 1935-39 |
| | | Tons | Tons | Percent |
| Raisins | | | | |
| California | Fresh | 933,600 | 869,600 | -6.9 |
| California | Dry | 233,400 | 217,400 | -6.9 |
| Greece | do. | 32,700 | 39,000 | +19.3 |
| Iran | do. | 36,200 | 52,500 | +45.0 |
| Australia | do. | 60,300 | 67,100 | +11.3 |
| California prunes | Fresh | 569,500 | 393,000 | -31.0 |
| California apricots | do. | 250,600 | 182,600 | -27.1 |
| California deciduous fruits | do. | 1,548,000 | 1,767,000 | +14.1 |
| California commercial grape crush | do. | 773,200 | 1,251,060 | +61.8 |
| California table grapes | do. | 292,320 | 416,920 | +42.6 |
| California fresh juice grapes | do. | 212,660 | 117,480 | -44.8 |
| California canned grapes | do. | 5,820 | 25,680 | +341.2 |

## Fluctuations

Production of California raisins has been subject to violent fluctuations. This has subjected raisin marketing channels or outlets to the additional stress of large year-to-year changes in volume handled. In 5 individual years, the change in production from the preceding year exceeded 50 percent. Since 1919, the magnitude of year-to-year changes in production has steadily increased, averaging almost 30 percent of production since World War II (fig. 2).

There were important differences in fluctuations among varieties. Muscat raisin production has shown the greatest year-to-year fluctuations, twice that

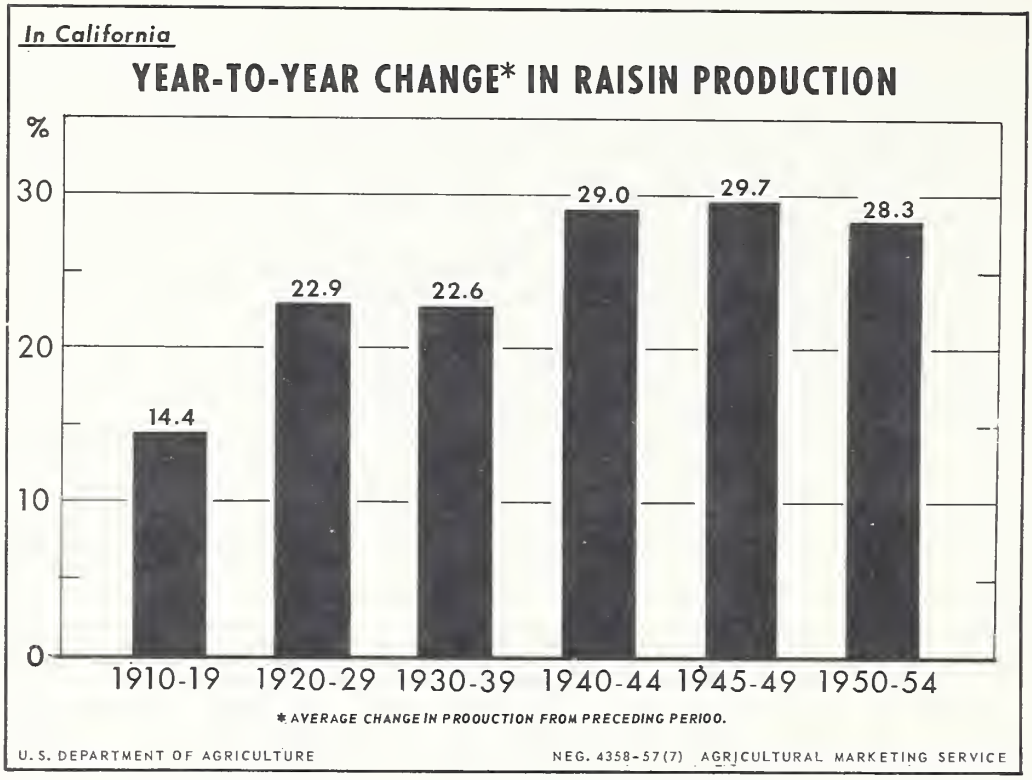


Figure 2

of Natural Thompson production (table 3). In 13 of the last 15 years, production of Muscat raisins has changed more than 40 percent from that of the preceding year (table 4).

Table 3.--Year-to-year change in California production of natural raisin varieties, averages for selected periods, 1940-54

| Variety | Production changes | | |
|---|---|---|---|
| | 1940-44 | 1945-49 | 1950-54 |
| | Percent | Percent | Percent |
| Natural Thompson | 21.6 | 28.5 | 28.3 |
| Natural Muscat | 59.7 | 58.0 | 56.8 |
| Natural Sultana | 48.7 | 50.1 | 37.7 |
| Natural Zante currant | 8.0 | 11.7 | 9.2 |

The size of fluctuation and pattern of varietal utilization appear to be related. Of all the raisins dried from multiple-use grapes, the greatest fluctuation is for Muscat and Sultana varieties which have the smallest proportions of their production used for raisins.

Table 4.--Size distribution of year-to-year changes in California production of natural raisin varieties, 1940-55

| Variety | Years having a production change of-- | | | | |
|---|---|---|---|---|---|
| | Less than 20 percent | 20 to 39.9 percent | 40 to 59.9 percent | 60 percent and over | Total |
| | Number | Number | Number | Number | Number |
| Natural Thompson | 7 | 4 | 3 | 1 | 15 |
| Natural Muscat | 0 | 2 | 10 | 3 | 15 |
| Natural Sultana | 3 | 5 | 3 | 4 | 15 |
| Natural Zante currant | 14 | 1 | 0 | 0 | 15 |

California raisin production fluctuates more than production of most related commodities. However, fluctuations in raisins were slightly less than for all grapes used for commercial crush in California. Average year-to-year changes in production, expressed as a percentage of average production, of California raisins and selected commodities, 1945-54, are shown below:

| Commodity | Percent |
|---|---|
| Raisins | |
| California | 29.1 |
| Greece 1/ | 25.1 |
| Iran | 28.2 |
| Turkey | 22.4 |
| Australia 1/ | 22.0 |
| California prunes | 13.6 |
| California figs | 10.5 |
| California apricots | 39.7 |
| California commercial crush | 32.3 |
| California table grapes | 10.1 |

## DOMESTIC AND EXPORT OUTLETS

### Comparative Strength of Domestic and Export Outlets

Total exports (including those to Canada) and domestic disappearance (excluding imports) indicate the relative strength of these outlets as users of California raisins through commercial channels, and through industry programs and Government assistance (table 5).

1/ Excludes currants.

Table 5.--California raisins and currants: Total U. S. domestic disappearance and exports, dry weight, averages for selected periods, 1909-54, annual 1955

| Period | Domestic disappearance 1/ | Exports 2/ | Total |
|---|---|---|---|
| | Percent | Percent | Tons |
| 1909-13 | 86.0 | 14.0 | 65,960 |
| 1915-19 | 75.1 | 24.9 | 142,140 |
| 1921-24 | 76.0 | 24.0 | 176,525 |
| 1925-29 | 65.1 | 34.9 | 237,030 |
| 1930-34 | 70.6 | 29.4 | 184,710 |
| 1935-39 | 69.8 | 30.2 | 210,249 |
| 1940-44 | 68.1 | 31.9 | 242,621 |
| 1945-49 | 63.5 | 36.5 | 217,004 |
| 1950-54 | 69.1 | 30.9 | 199,685 |
| 1955 | 61.9 | 38.1 | 208,544 |

1/ Domestic disappearance excludes military use since 1941, and also excludes all imports.

2/ Exports include raisins sent to Canada, and also include both Government and industry shipments.

In the rapid expansion of the industry which continued through the late twenties, the export market steadily increased in strength relative to the domestic market for California raisins, with its share increasing from 14 to 35 percent of these two outlets combined. During the depression, exports fell off to 30 percent.

In 1950-54 the decline in total raisin shipments was accompanied by a slightly greater weakening in exports, with the share of the export market decreasing from 36.5 percent in 1945-49 to 31 percent in 1950-54. However, at 31 percent of the total, the export percentage in 1950-54 still exceeded that of the thirties, and was only moderately below the proportion in 1925-29 when the actual volume of raisin exports was highest.

## Major Outlets for U. S. Exports

The United Kingdom, a major outlet for U. S. raisins, declined in importance from 42 percent of all U. S. exports in 1934-38 to 33 percent in 1952-55 (table 6). On the other hand, Canada has more than doubled its importance as a market since 1934-38, to become the second largest outlet for U. S. raisins in 1952-55.

Table 6.--United States exports of raisins and currants to selected countries, dry weight, averages 1934-38, 1952-55

| Country | 1934-38 | | 1952-55 | |
|---|---|---|---|---|
| | Quantity | Percentage of total | Quantity | Percentage of total |
| | Tons | Percent | Tons | Percent |
| United Kingdom | 25,807 | 42.5 | 23,515 | 33.1 |
| Sweden | 5,022 | 8.3 | 4,220 | 6.0 |
| Netherlands | 4,802 | 7.9 | 4,782 | 6.8 |
| Norway | 1,305 | 2.2 | 3,781 | 5.3 |
| West Germany | 1/ 931 | 1.5 | 4,385 | 6.2 |
| Canada | 3,808 | 6.3 | 9,796 | 13.8 |
| New Zealand | 1,282 | 2.1 | 158 | .2 |
| Total | 42,957 | 70.8 | 50,637 | 71.4 |
| Exported to other countries | 17,736 | 29.2 | 20,328 | 28.6 |
| Total exports | 60,693 | 100.0 | 70,965 | 100.0 |

1/ Germany, 1934-38.

Competitive Position of U. S. Raisins in Major Importing Countries 2/

While California raisins held a stable share--30 percent--of the United Kingdom's imports of raisins in both 1934-38 and 1952-55, Canada's importations of U. S. raisins increased from 20 to 43 percent over the same period (table 7). U. S. exports of raisins increased in importance in West Germany but decreased in importance in Sweden, Netherlands, Norway, and New Zealand.

## PER CAPITA CONSUMPTION

The per capita domestic consumption of raisins has shown a declining trend from the mid 1920's through 1956 (tables 8 and 9). Per capita consumption of raisins in 1950-56 fell below that of the 1910-19 period.

Declines in consumption similar to those for raisins were noted in grapes for all other uses, as well as for dried prunes and dried apricots. It is important for food industries to note that from 1910 to 1939 the index of per capita consumption of all foods remained quite stable and since 1940 has increased slightly. This increase in per capita consumption of all foods combined implies that consumption of some foods has risen a little more than

2/ Imports of currants excluded.

Table 7.--Proportion of specified countries' total imports of raisins originating in the United States, dry weight, averages 1934-38, 1952-55 1/

| Country | Proportion of imports from U. S. | |
|---|---|---|
| | 1934-38 | 1952-55 |
| | Percent | Percent |
| United Kingdom | 29.1 | 30.5 |
| Sweden | 83.3 | 50.7 |
| Netherlands | 28.5 | 24.3 |
| Norway | 68.8 | 60.9 |
| West Germany | 2/ 2.2 | 9.7 |
| Canada | 20.5 | 43.1 |
| New Zealand | 24.8 | 1.5 |

1/ Excludes currants.
2/ Germany, 1934-38.

Table 8.--Per capita consumption of raisins and selected commodities and food groups, United States, averages for selected periods, 1910-56 1/

| Period | Raisins 2/ | All grapes excluding raisins 3/ | Prunes 2/ | Apricots 2/ | Index of all foods 4/ |
|---|---|---|---|---|---|
| | Pounds | Pounds | Pounds | Pounds | |
| 1910-14 | 1.7 | 12.0 | 0.9 | 0.1 | 88 |
| 1915-19 | 2.3 | 14.0 | 1.6 | .2 | 86 |
| 1920-24 | 3.1 | 18.0 | 1.5 | .2 | 89 |
| 1925-29 | 3.0 | 18.8 | 1.7 | .2 | 91 |
| 1930-34 | 2.4 | 15.4 | 1.7 | .3 | 89 |
| 1935-39 | 2.4 | 14.5 | 2.0 | .3 | 91 |
| 1940-44 | 2.7 | 14.9 | 1.8 | .1 | 98 |
| 1945-49 | 2.3 | 13.6 | 1.2 | .2 | 101 |
| 1950-54 | 1.9 | 12.0 | 1.0 | .1 | 100 |
| 1955 | 1.8 | 11.6 | .7 | .2 | 102 |
| 1956 | 1.7 | 10.8 | 1.1 | .1 | 103 |

1/ Civilian consumption only since 1941.
2/ Dry weight.
3/ Fresh weight.
4/ 1947-49 = 100.

Table 9.--Index of per capita consumption of raisins and selected commodities and food groups, United States, averages 1910-56 1/

(1930-39 = 100)

| Period | Raisins | All grapes excluding raisins | Prunes | Apricots | All foods |
|---|---|---|---|---|---|
| 1910-19 | 83 | 87 | 67 | 33 | 97 |
| 1920-29 | 125 | 123 | 89 | 67 | 100 |
| 1930-39 | 100 | 100 | 100 | 100 | 100 |
| 1940-44 | 112 | 99 | 100 | 33 | 109 |
| 1945-49 | 96 | 91 | 67 | 67 | 112 |
| 1950-54 | 79 | 80 | 56 | 33 | 111 |
| 1955 | 75 | 78 | 39 | 67 | 113 |
| 1956 | 71 | 72 | 61 | 33 | 114 |

1/ Civilian consumption only since 1941.

the consumption of other foods such as raisins which has declined. However, with the continuously growing population in the United States, it is possible for an industry to maintain, or even increase, its total volume marketed domestically in spite of declining per capita consumption of its product. It must be emphasized, therefore, that declining per capita consumption of raisins does not necessarily imply a declining raisin industry--given an expanding domestic population.

## RETAIL PRICES

The increase in the retail price of raisins--12.7 percent from 1947-50 to 1951-55--is on a par with the general increase in the price index of all foods over the same period (table 10).

However, during the period 1951-55 as compared with 1930-39, raisin prices at retail increased slightly more than all food, substantially more than all canned fruits and vegetables and fresh oranges, but less than dried prunes (table 11).

## RETURNS TO GROWERS

### Raisins

Grower returns for all raisins in the period immediately following World War II averaged $134 per ton, following which returns increased by almost 25 percent to average $166 per ton, almost $14 below record returns of the World War II period (table 12).

Table 10.--Retail price per pound of raisins and of selected commodities, and price index of selected food groups, United States, averages for selected periods, 1923-55

| Period | Raisins | Dried prunes | Bananas | Oranges | Retail price index 1947-49 = 100 | |
|---|---|---|---|---|---|---|
| | | | | | Canned fruits and vegetables | All foods |
| | Cents | Cents | Cents | Cents | | |
| 1923-29 | 14.49 | 16.27 | 10.74 | 10.40 | 78.0 | 64.6 |
| 1930-39 | 10.21 | 10.74 | 6.93 | 6.89 | 63.2 | 47.2 |
| 1947-50 | 21.82 | 23.48 | 15.95 | 9.48 | 98.0 | 100.3 |
| 1951-55 | 24.60 | 29.58 | 16.66 | 10.28 | 104.1 | 113.2 |
| Change from preceding period | | | | | | |
| | Percent | Percent | Percent | Percent | Percent | Percent |
| 1930-39 | -29.5 | -34.0 | -35.5 | -33.8 | -19.0 | -26.9 |
| 1947-50 | +113.7 | +118.6 | +130.2 | +37.6 | +55.1 | +112.5 |
| 1951-55 | +12.7 | +26.0 | +4.5 | +8.4 | +6.2 | +12.9 |

Table 11.--Index of retail price of raisins, and of selected commodities and food groups, United States, averages for selected periods, 1923-55

(1930-39 = 100)

| Period | Raisins | Dried prunes | Bananas | Oranges | Canned fruits and vegetables | All foods |
|---|---|---|---|---|---|---|
| 1923-29 | 142 | 151 | 155 | 151 | 123 | 131 |
| 1930-39 | 100 | 100 | 100 | 100 | 100 | 100 |
| 1947-50 | 214 | 219 | 230 | 137 | 155 | 203 |
| 1951-55 | 241 | 275 | 240 | 149 | 164 | 230 |

During the last 16 years, Muscat, Zante currant, and all bleached raisins have shown higher returns per ton than Thompson Seedless, while returns for Sultanas averaged less than Thompson Seedless. However, on a percentage basis there were no substantial differences among varieties in the overall pattern of increases in returns in 1951-55 over 1947-49.

## Raisins Vs. Commercial Crush Use of Raisin Variety Grapes

During the period 1935-39, grower returns per ton for raisin variety grapes made into raisins were practically identical with returns for those used for commercial crushing (table 13). During the World War II period, returns from the commercial crush outlet exceeded returns from the raisin outlet by an average of $2.55 per ton. Since World War II, returns in the raisin outlet have been greater than those for raisin grapes used in the

Table 12.--Returns to growers per ton of California raisins, dry basis, averages for selected periods, 1920-55

| Period | All varieties and types | Natural Thompson Seedless | Natural Muscats | Natural Sultanas | Natural Zante currants | Bleached, all types |
|---|---|---|---|---|---|---|
| | Dollars | Dollars | Dollars | Dollars | Dollars | Dollars |
| 1920-24 | 120.60 | --- | --- | --- | --- | --- |
| 1925-29 | 61.20 | --- | --- | --- | --- | --- |
| 1930-34 | 55.88 | --- | --- | --- | --- | --- |
| 1935-39 | 55.72 | --- | --- | --- | --- | --- |
| 1941-46 | 179.58 | 174.77 | 183.17 | 172.17 | 228.17 | 206.33 |
| 1947-49 | 133.67 | 130.83 | 148.13 | 117.80 | 156.17 | 161.67 |
| 1951-55 | 165.80 | 161.80 | 187.20 | 145.80 | 187.20 | 198.40 |
| | Change from preceding period | | | | | |
| | Percent | Percent | Percent | Percent | Percent | Percent |
| 1925-29 | -49.3 | --- | --- | --- | --- | --- |
| 1930-34 | -8.7 | --- | --- | --- | --- | --- |
| 1935-39 | -.3 | --- | --- | --- | --- | --- |
| 1941-46 | +222.3 | --- | --- | --- | --- | --- |
| 1947-49 | -25.6 | -25.1 | -19.1 | -31.6 | -31.6 | -21.6 |
| 1951-55 | +24.0 | +23.7 | +26.4 | +23.8 | +19.9 | +22.7 |

Table 13.--Returns to growers per ton of California raisin variety grapes, for selected uses, fresh basis, averages for selected periods, 1920-55

| Period | Raisins | Commercial crush | All uses |
|---|---|---|---|
| | Dollars | Dollars | Dollars |
| 1920-24 | 30.15 | --- | 30.44 |
| 1925-29 | 15.30 | --- | 15.98 |
| 1930-34 | 13.97 | --- | 14.64 |
| 1935-39 | 13.93 | 13.94 | 14.54 |
| 1941-46 | 44.90 | 47.45 | 46.92 |
| 1947-49 | 33.40 | 28.23 | 34.27 |
| 1951-55 | 41.44 | 31.04 | 41.60 |
| | Change from preceding period | | |
| | Percent | Percent | Percent |
| 1925-29 | -49.3 | --- | -47.6 |
| 1930-34 | -8.7 | --- | -8.4 |
| 1935-39 | -.3 | --- | -.7 |
| 1941-46 | +222.3 | +240.4 | +222.7 |
| 1947-49 | -25.6 | -40.5 | -27.0 |
| 1951-55 | +24.1 | +10.0 | +21.4 |

commercial crush outlet by an average of $5.17 per ton during 1947-49 and $10.40 per ton during 1951-55.

Returns Per Bearing Acre

Gross returns from raisin variety grapes have shown slight gains relative to returns per bearing acre for table and wine varieties during the 1947-55 period as contrasted to 1930-39 (fig. 3). Returns to raisin grape varieties were least favorable during the twenties and the World War II period.

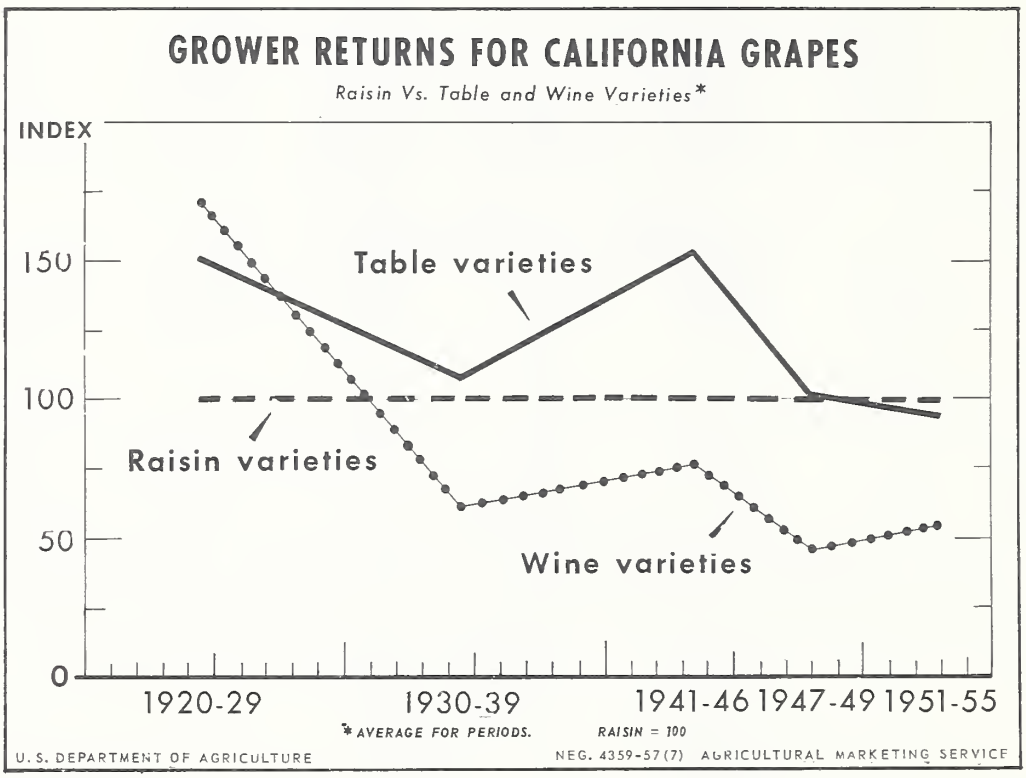


Figure 3

## RAISIN GRAPE UTILIZATION

Dominant Factors Involved in Grape Utilization

Multiple-use character of grapes. The key factor in grape utilization is the multiple-use character of most of the grapes produced in California--a multiple-use grape being one which can be and is used in more than one outlet. Table 14 shows the multiple-use pattern for the major raisin grape varieties and for table and wine varietal types. Figure 4 shows the multiple-use pattern for Thompson Seedless grapes for the period 1950-54. Similarly,

Table 14.--Major outlets used for California grapes by individual raisin grape varieties and for table and wine varietal types, 1950-54

| Outlet used | Raisin grape varieties | | | | Table variety | Wine variety |
|---|---|---|---|---|---|---|
| | Thompson Seedless | Muscat | Sultana | Zante currant | | |
| | Percent | Percent | Percent | Percent | Percent | Percent |
| Raisins | 62 | 22 | 37 | 98 | 1/ | 2/ |
| Commercial crush | 26 | 54 | 63 | 2 | 51 | 86 |
| Fresh juice | 0 | 20 | 0 | 0 | 0 | 14 |
| Table | 10 | 5 | 0 | 0 | 49 | 0 |
| Canning | 2 | 0 | 0 | 0 | 0 | 0 |
| Total | 100 | 100 | 100 | 100 | 100 | 100 |

1/ Less than 0.1 percent.
2/ Less than 0.2 percent.

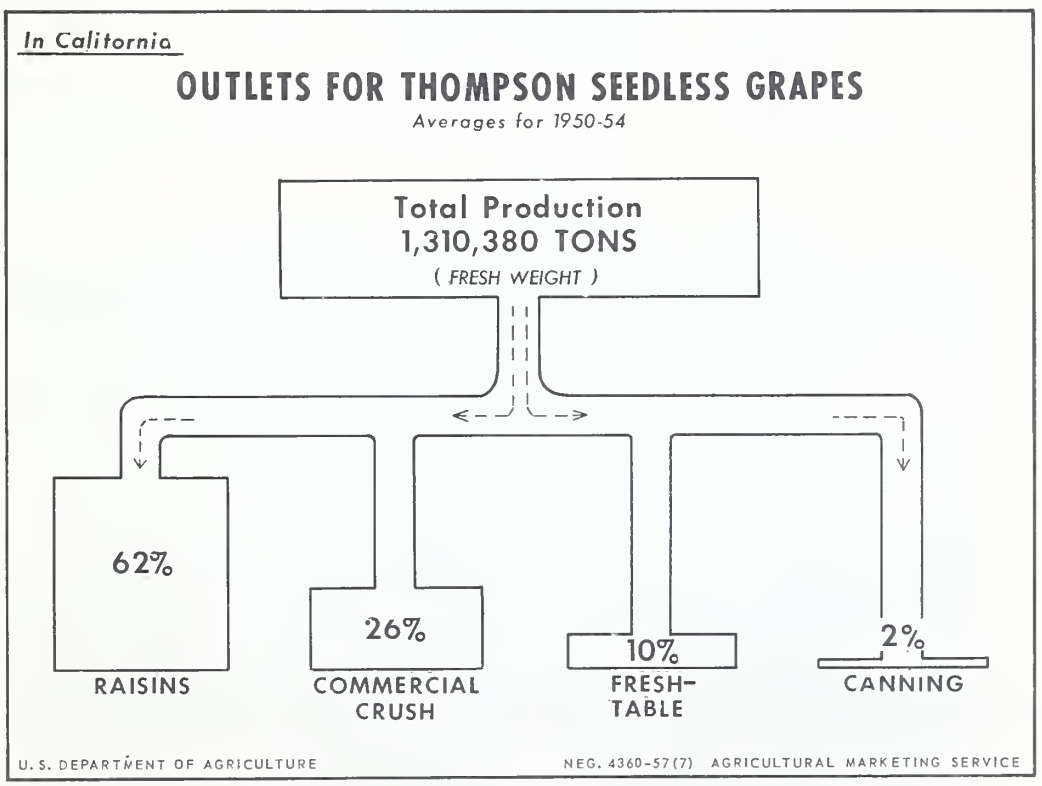


Figure 4

figure 5 shows the multiple use of grapes by the California commercial crush outlet, the chief competitor to the raisin industry in purchases of Thompson Seedless grapes.

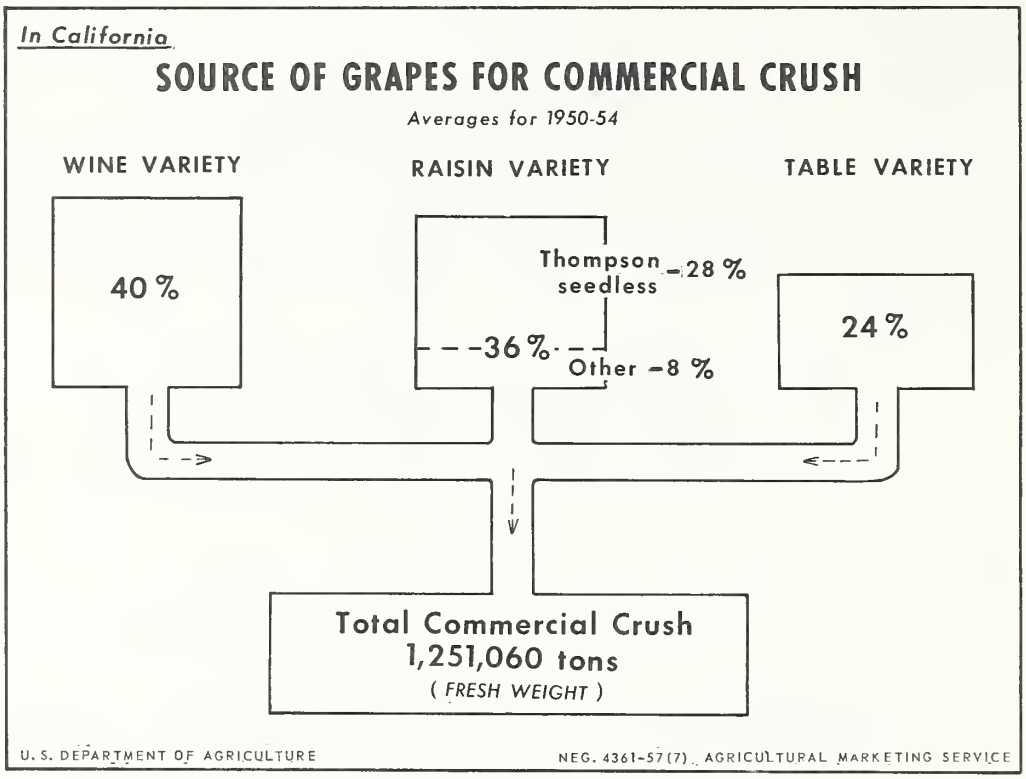


Figure 5

Marketing flexibility and interdependence in grape industries. Flexibility in marketing and interdependence are two very important characteristics of the California grape industry. These characteristics result from two types of marketing decisions where: (1) Some growers can shift their grape sales from one outlet to another from year to year; (2) similarly, some outlets can change the varietal composition of their products (production) from year to year by shifting their purchases of grapes from one variety to another.

Potentially, this flexibility and interdependence can help in working out the marketing problems of the raisin industry, or under other circumstances, they can create additional problems. For example, any detrimental effect of an unusually large Thompson Seedless crop can be spread among several outlets, rather than being concentrated upon the raisin outlet. On the other hand, depressed conditions in another outlet using substantial quantities of Thompson Seedless grapes can result in a disproportionate amount of this variety going to the raisin outlet.

This flexibility in marketing sometimes is beneficial to the raisin industry and sometimes it is not. In either case, the interdependence of the California grape industries is seen in the sensitivity of the raisin industry to developments in other grape industries which also are sensitive to developments in the raisin industry.

Raisin Industry's Use of Raisin Variety Grapes

Since World War I, the raisin industry has steadily lost its dominant position in the use of raisin grapes. The industry now buys about 60 percent of the raisin variety grapes compared with 94 percent in 1910-14 (fig. 6). This decline has occurred in spite of strong increases in raisin production in the twenties. The most important factor has been that all competing uses (combined) for raisin grapes have grown faster than raisins, especially since 1930 (fig. 7). Similarly, the raisin industry's share of Thompson Seedless grapes has declined from 70 percent in 1939-41 to 62 percent in 1950-54.

Since World War I, the raisin industry has become increasingly sensitive to developments in other California grape industries also using raisin variety grapes. As the raisin industry declined in importance as a user of raisin variety grapes, successively larger increases occurred in the year-to-year change in the proportion of raisin variety grape production used for raisins (table 15 and also see fig. 6). For example, considering two successive extreme years, in 1946 the raisin industry dried 47 percent of a 1.64 million ton raisin grape crop, and in the following year it dried 72 percent of a similar sized 1.70 million ton raisin grape crop. The declining importance of the raisin industry as a user of raisin grapes is associated also with the successively larger year-to-year changes in raisin production, as previously discussed on pages 3, 4, and 5.

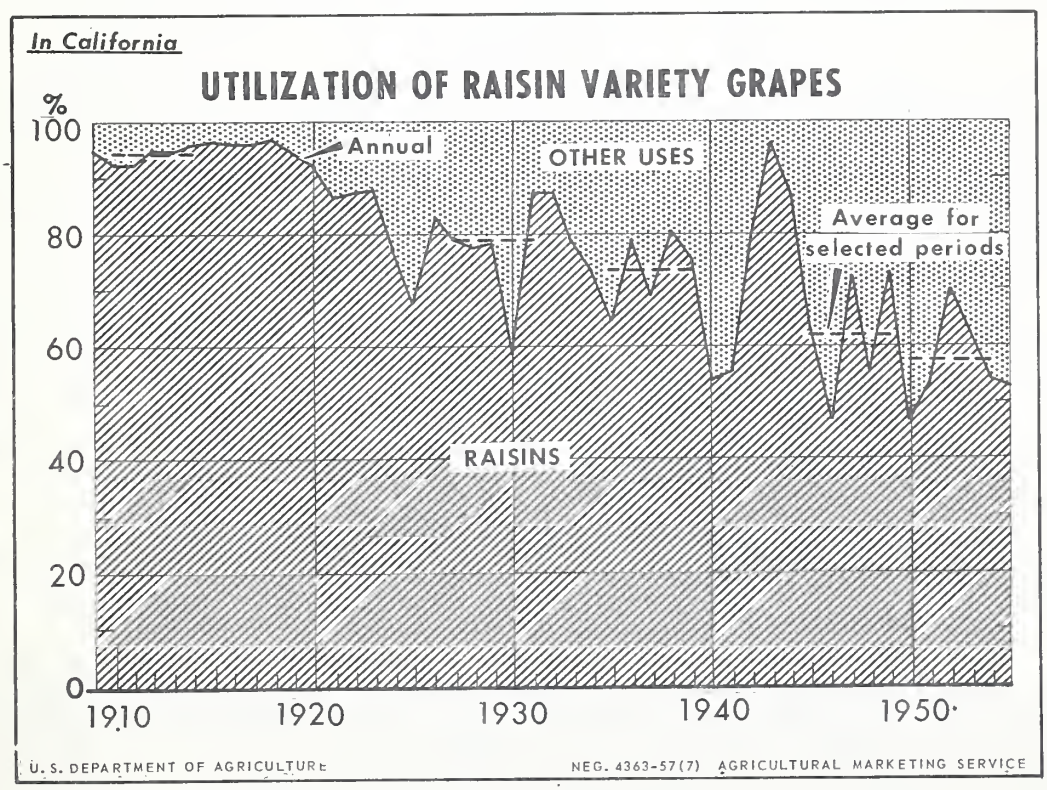


Figure 6

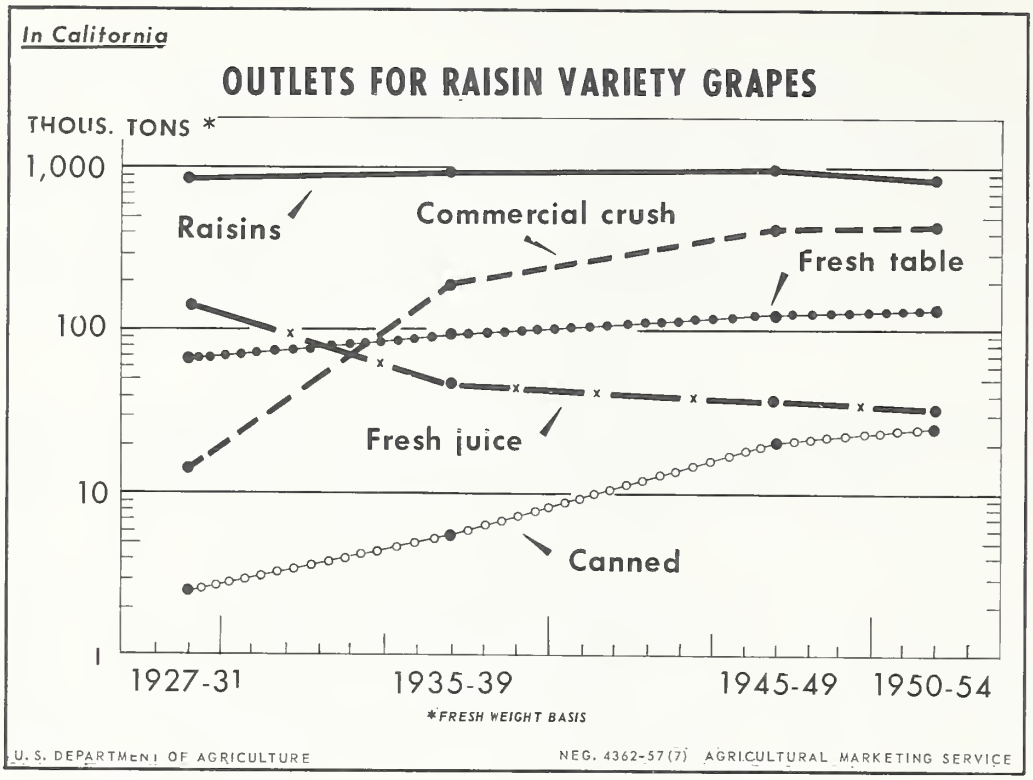


Figure 7

Table 15.--Changes in the proportion of California raisin variety grape production used by the raisin industry, averages for selected periods, 1909-55

| Annual share | Period | | | |
|---|---|---|---|---|
| | 1909-18 | 1925-29 | 1930-40 | 1946-55 |
| | Percent | Percent | Percent | Percent |
| Maximum | 96.9 | 83.0 | 87.2 | 72.9 |
| Minimum | 92.4 | 65.0 | 53.7 | 46.8 |
| Range | 4.5 | 18.0 | 33.5 | 26.1 |
| Average change | 1.1 | 8.7 | 12.1 | 14.2 |

Other California Grape Industries' Use of Raisin Variety Grapes

Analysis of use of raisin grapes by other industries reveals the following trends (table 16, fig. 7):

(1) The California commercial crush industry used almost 30 percent of the raisin variety grape production in 1950-54 compared with the 1.3 percent it used in 1927-31--which was prior to the repeal of prohibition statutes by the 21st Amendment to the United States Constitution.

Table 16.--Use of California raisin variety grape production, fresh weight, by major outlets, fresh weight averages for selected periods, 1927-54

| Outlet | 1927-31 | | 1935-39 | | 1945-49 | | 1950-54 | |
|---|---|---|---|---|---|---|---|---|
| | Quantity | Percentage of total | Quantity | Percentage of total | Quantity | Percentage of total | Quantity | Percentage of total |
| | Tons | Percent | Tons | Percent | Tons | Percent | Tons | Percent |
| Raisin | 897,600 | 79.6 | 933,600 | 73.5 | 984,400 | 61.8 | 869,600 | 57.5 |
| Commercial crush | 14,520 | 1.3 | 193,800 | 15.2 | 427,260 | 26.8 | 449,500 | 29.8 |
| Fresh juice | 146,020 | 12.9 | 46,760 | 3.7 | 37,000 | 2.3 | 33,600 | 2.2 |
| Table | 68,520 | 6.1 | 90,220 | 7.1 | 123,280 | 7.8 | 133,220 | 8.8 |
| Canned | 1,540 | .1 | 5,820 | .5 | 20,660 | 1.3 | 25,680 | 1.7 |
| Total | 1,128,200 | 100.0 | 1,270,200 | 100.0 | 1,592,600 | 100.0 | 1,511,600 | 100.0 |

(2) The use of raisin grapes (primarily Muscats) by the California fresh juice industry, declined from almost 13 percent in 1927-31 to 2.2 percent in 1950-54.

(3) The proportion of raisin variety grapes (primarily Thompson Seedless) used by the fresh table industry increased slightly, while the tonnage almost doubled from 1927-31 to 1950-54.

(4) The growth of the canning industry's use of raisin grapes (exclusively Thompson Seedless) has increased from 0.1 percent (1,540 tons) in 1927-31 to 1.7 percent (25,680 tons) in 1950-54.

Trends in the use of individual raisin grape varieties are shown in table 17. Of major interest is the declining proportion of Thompson Seedless grapes going into raisins, and the increasing proportion going for commercial crush use.

Table 17.--Proportion of California production of raisin grape varieties used by major outlets, averages for selected periods, 1939-54

| Variety and period | Outlet | | | | | |
|---|---|---|---|---|---|---|
| | Raisins | Commercial crush | Fresh juice | Fresh table | Canned | Total |
| | Percent | Percent | Percent | Percent | Percent | Percent |
| Thompson Seedless | | | | | | |
| 1939-41 | 69.9 | 19.8 | --- | 9.0 | 1.3 | 100.0 |
| 1945-49 | 68.6 | 21.0 | --- | 8.8 | 1.6 | 100.0 |
| 1950-54 | 62.1 | 26.5 | --- | 9.5 | 1.9 | 100.0 |
| Muscat | | | | | | |
| 1939-41 | 24.3 | 51.8 | 20.8 | 3.1 | --- | 100.0 |
| 1945-49 | 22.0 | 58.1 | 16.7 | 3.2 | --- | 100.0 |
| 1950-54 | 21.5 | 53.4 | 19.8 | 5.3 | --- | 100.0 |
| Sultana | | | | | | |
| 1939-41 | 34.6 | 64.0 | 1.4 | --- | --- | 100.0 |
| 1945-49 | 38.6 | 61.4 | --- | --- | --- | 100.0 |
| 1950-54 | 36.8 | 63.2 | --- | --- | --- | 100.0 |
| Zante currant | | | | | | |
| 1939-41 | 100.0 | --- | --- | --- | --- | 100.0 |
| 1945-49 | 97.6 | 2.4 | --- | --- | --- | 100.0 |
| 1950-54 | 97.9 | 2.1 | --- | --- | --- | 100.0 |

Table 18.--Proportion of California production of raisin, table, and wine variety grapes used by major outlets, averages for selected periods, 1927-54

| Outlet and varietal class used | Period | | | |
|---|---|---|---|---|
| | 1927-31 | 1935-39 | 1945-49 | 1950-54 |
| | Percent | Percent | Percent | Percent |
| Raisin outlet | | | | |
| Raisin grapes | 97.1 | 99.3 | 99.8 | 99.9 |
| Table grapes | 1.7 | .6 | .1 | .0 |
| Wine grapes | 1.2 | .1 | .1 | .1 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 |
| Crush outlet | | | | |
| Raisin grapes | 25.2 | 25.0 | 35.3 | 35.9 |
| Table grapes | 26.1 | 23.3 | 24.4 | 23.8 |
| Wine grapes | 48.7 | 51.7 | 40.3 | 40.3 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 |
| Fresh juice outlet | | | | |
| Raisin grapes | 26.0 | 22.0 | 25.7 | 28.6 |
| Table grapes | 5.0 | 1.8 | 1.2 | 1.2 |
| Wine grapes | 69.0 | 76.2 | 73.1 | 70.2 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 |
| Table outlet | | | | |
| Raisin grapes | 20.9 | 30.9 | 31.1 | 32.0 |
| Table grapes | 79.1 | 69.1 | 68.9 | 68.0 |
| Wine grapes | --- | --- | --- | --- |
| Total | 100.0 | 100.0 | 100.0 | 100.0 |
| Canned outlet | | | | |
| Raisin grapes | 100.0 | 100.0 | 100.0 | 100.0 |
| Table grapes | --- | --- | --- | --- |
| Wine grapes | --- | --- | --- | --- |
| Total | 100.0 | 100.0 | 100.0 | 100.0 |

Use of raisin variety grapes compared with use of other grapes. Further analysis of use of raisin variety grapes by other California grape industries shows the following trends of change in the varietal composition of their supplies (table 18):

(1) The commercial crush industry increased its use of raisin variety grapes faster than its use of other grape varietal classes--especially wine variety. As a result, the importance of raisin grapes for crushing increased from 25 percent in 1935-39 to 36 percent in 1950-54.

(2) In the fresh juice industry, the decline in the use of all grapes and of raisin grapes was similar, percents holding stable.

(3) The importance of raisin variety grapes (primarily Thompson Seedless) in the fresh table outlet has increased substantially since 1927-31.

In the commercial crush outlet, raisin variety grapes have shown much more fluctuation in use than wine and table varieties (table 19).

Table 19.--Comparative fluctuation in the use of raisin, table, and wine grape varietal types by the California commercial crush industry, 1934-41 and 1946-55

| Varietal type | Average fluctuation 1/ | |
|---|---|---|
| | 1934-41 | 1946-55 |
| | Percent | Percent |
| Raisin variety | 58.7 | 35.8 |
| Table variety | 29.0 | 24.3 |
| Wine variety | 15.7 | 12.2 |

1/ As measured by coefficient of variation.

## RAISIN GRAPE SUPPLY SITUATION

The increased production of raisin variety grapes over the last 50 years has put the raisin industry under continual pressure to market more and more of them in the form of raisins. Inability of raisin marketings to keep pace with increasing raisin grape production has tended to pile up surpluses. On the other hand, the ability of other users of raisin grapes (e.g., commercial crush, fresh table, etc.) to ease the pressure of supplies on the raisin industry is limited sharply by the increasing production of other California grape varieties supplying these uses and the limited capacity (relative to grape supplies) of these other outlets to expand their marketings.

## Grape Production

Raisin, table, and wine varieties. Raisin variety grape production showed its greatest increase during the industry's early growth period, from an average of 450,000 tons in 1910-19 to 1,100,000 tons in 1920-29. The steady increase in production over the years was interrupted twice: Once in the late twenties and early thirties, and recently in 1950-55 when there appeared to be a leveling off to about 1,500,000 tons in the production of raisin grapes (table 20 and fig. 8). Production changes generally similar to those in raisin variety grapes also have occurred in table and wine variety grapes--with the recent exception that table and wine grape production have shown slight increases in 1950-55 over 1945-49.

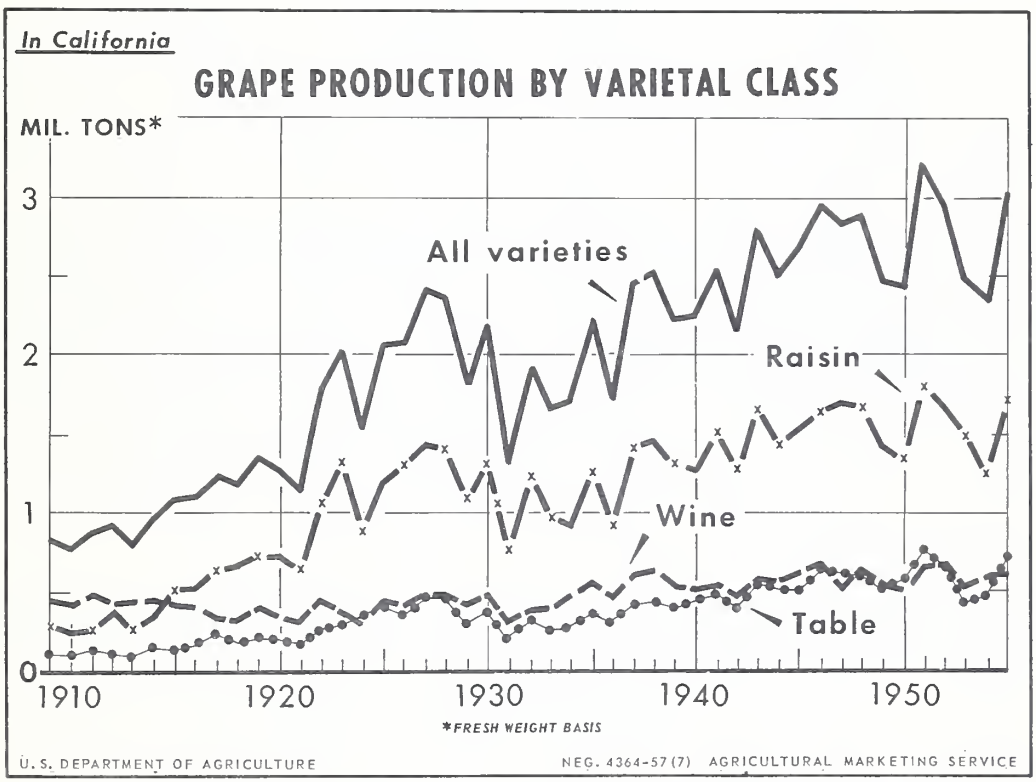


Figure 8

Individual raisin grape varieties. The production pattern found for all raisin variety grapes combined is not the same for each of the individual raisin grape varieties. The most important variety, Thompson Seedless, has shown a definite increase in production during the last 16 years--whereas the Muscat and Sultana varieties have shown drastic declines (table 21). Consequently, Thompson Seedless showed a substantial increase to 87 percent of the raisin variety grapes in 1950-55 as compared to 79 percent in 1940-44.

Table 20.--Grape production in California by varietal class, fresh weight, averages for selected periods, 1909-55, annual 1956

| Varietal class | 1909-19 | | 1920-29 | | 1930-39 | | 1940-49 | | 1950-55 | | 1956 1/ | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Quantity | Percentage of total | Quantity | Percentage of total | Quantity | Percentage of total | Quantity | Percentage of total | Quantity | Percentage of total | Quantity | Percentage of total |
| | Tons | Percent | Tons | Percent | Tons | Percent | Tons | Percent | Tons | Percent | Tons | Percent |
| Raisin | 448,455 | 44 | 1,105,800 | 60 | 1,157,200 | 58 | 1,514,000 | 58 | 1,544,000 | 56 | 1,625,000 | 62 |
| Table | 150,000 | 15 | 338,300 | 18 | 345,900 | 17 | 527,700 | 20 | 603,500 | 22 | 455,000 | 17 |
| Wine | 415,090 | 41 | 404,700 | 22 | 487,700 | 25 | 565,600 | 22 | 590,000 | 22 | 567,000 | 21 |
| All varieties | 1,013,545 | 100 | 1,848,800 | 100 | 1,990,800 | 100 | 2,607,300 | 100 | 2,737,500 | 100 | 2,647,000 | 100 |

1/ Preliminary.

Table 21.--Production of California Thompson Seedless, Muscat, Sultana, and Zante currant grape varieties, fresh weight, averages for selected periods, 1940-55

| Period | Thompson Seedless | Muscat | Sultana | Zante currant | All raisin varieties |
|---|---|---|---|---|---|
| | Tons | Tons | Tons | Tons | Tons |
| 1940-44 | 1,128,040 | 251,820 | 38,520 | 14,620 | 1,433,000 |
| 1945-49 | 1,321,160 | 222,180 | 32,320 | 16,940 | 1,592,600 |
| 1950-55 | 1,341,950 | 170,766 | 18,017 | 13,267 | 1,544,000 |
| | Percent | Percent | Percent | Percent | Percent |
| 1940-44 | 78.7 | 17.6 | 2.7 | 1.0 | 100.0 |
| 1945-49 | 83.0 | 13.9 | 2.0 | 1.1 | 100.0 |
| 1950-55 | 86.9 | 11.0 | 1.2 | .9 | 100.0 |

Factors affecting production. The steadily increasing production of raisin variety grapes is accounted for by changes in acreage and changes in yield per bearing acre. Prior to the depression, the principal factor causing increasing production of raisin variety grapes was increases in acreage. In contrast, since the early thirties production increases have been almost entirely due to increases in yield. In the next few years, further acceleration in the increases in production seems likely as a result of recent increases in nonbearing acreage.

## Acreage

Raisin variety grapes. California growers have reduced raisin grape acreage over the past 30 years. Acreage in 1956 was 17 percent below the World War II peak and 29 percent below the all-time high in 1926. Acreage devoted to raisin variety grapes has consistently comprised about one-half of California's grape acreage (table 22, fig. 9).

The long-term trend of production increases, despite declining acreage since 1926, indicates that these increases have resulted from factors involving yield rather than from additional acreage.

Comparisons with related commodities. The pattern of acreage decline for raisin grapes is not a general one in California agriculture. Although similar declines were experienced by wine and table grape varietal types, all California tree fruits and nuts, prunes, apricots, and figs, increases occurred in the State's acreage devoted to all vegetables and all field crops.

Individual raisin grape varieties. In strong contrast to the overall decline of 15 percent in total raisin grape acreage from 1940 to 1955, Thompson Seedless acreage in the same period increased 11 percent--highlighting

Table 22.--California grape bearing acreage by varietal type, averages for selected periods, 1919-56

| Period | Raisin varieties | | | | Table varieties | | Wine varieties | | Total grapes | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Thompson Seedless | | All | | | | | | | |
| | Quantity | Percentage of total | Quantity | Percentage of total | Quantity | Percentage of total | Quantity | Percentage of total | Quantity | Percentage of total |
| | Acres | Percent | Acres | Percent | Acres | Percent | Acres | Percent | Acres | Percent |
| 1919-29 | --- | --- | 230,043 | 50.7 | 88,724 | 19.6 | 134,594 | 29.7 | 453,362 | 100.0 |
| 1930-39 | --- | --- | 240,440 | 47.4 | 88,726 | 17.5 | 177,950 | 35.1 | 507,116 | 100.0 |
| 1940-44 | 169,470 | 33.3 | 247,198 | 48.5 | 86,468 | 17.0 | 175,748 | 34.5 | 509,413 | 100.0 |
| 1950-54 | 185,687 | 39.7 | 228,067 | 48.7 | 87,498 | 18.7 | 152,499 | 32.6 | 468,064 | 100.0 |
| 1955-56 | --- | --- | 207,318 | 48.9 | 80,459 | 19.0 | 136,159 | 32.1 | 423,937 | 100.0 |

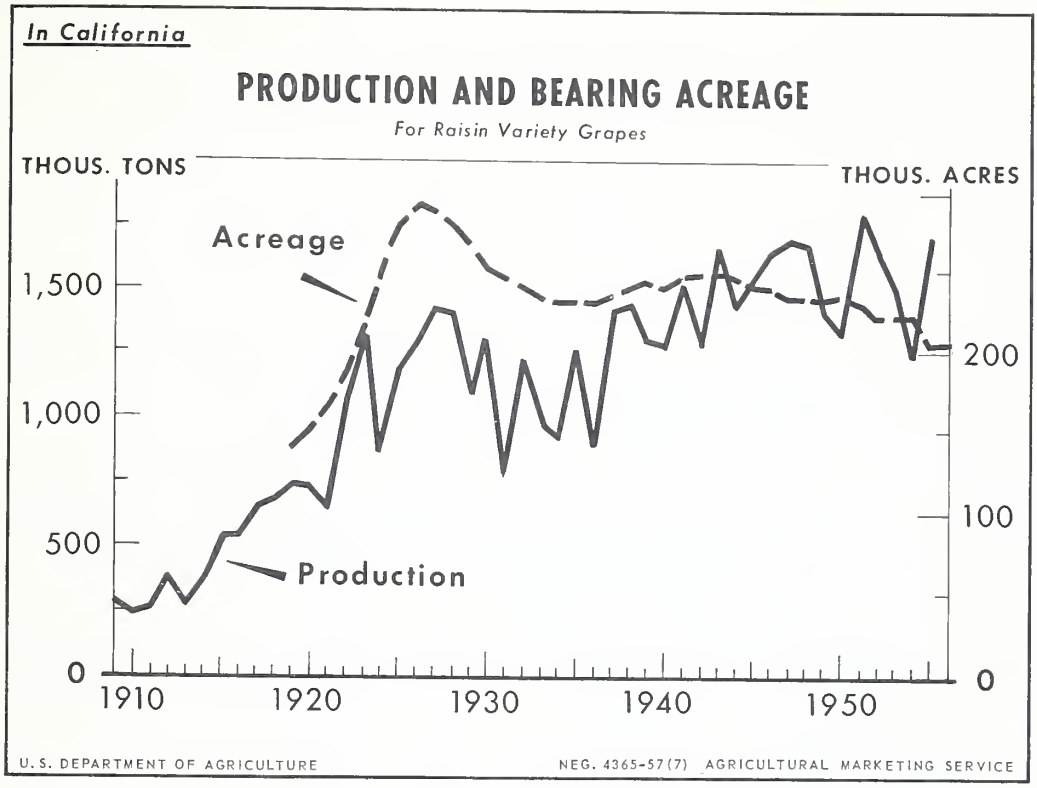


Figure 9

once more the industry's shift to this multiple-use grape (fig. 10, table 23). Substantial decreases in Muscat, Sultana, and Zante currant acreage reflected heavy displacements of these varieties.

Nonbearing raisin grape acreage. Of particular significance currently is the fact that California nonbearing raisin grape acreage, primarily Thompson Seedless, turned upward in 1954, and continued to rise in 1955, the first upturn in nonbearing raisin grape acreage since 1944. This development may herald a resurgence in bearing acreage in the next few years--the very slight upturn in 1956 marking the first increase in raisin grape bearing acreage since 1950. Since increases in production over the past 14 years have occurred despite declining acreage (primarily due to steady increases in yields), any upward movement in bearing acreage will greatly intensify the pressure of production on the raisin industry.

## Yield Per Bearing Acre

The yield trend for all raisin variety grapes has fallen into two distinct periods: A period of declining yields during the twenties and early thirties, followed by a period of steadily increasing yields that has continued to the present time (table 24). The earlier declining trend appears to be primarily the result of increased proportions of young and marginal vineyards associated with the acreage expansion of the twenties. Since the

Table 23.--California raisin grape bearing acreage, by leading varieties, averages for selected periods, 1940-54, annual 1955

| Variety | 1940-44 | | 1945-49 | | 1950-54 | | 1955 | |
|---|---|---|---|---|---|---|---|---|
| | Quantity | Percentage of total | Quantity | Percentage of total | Quantity | Percentage of total | Quantity | Percentage of total |
| | Acres | Percent | Acres | Percent | Acres | Percent | Acres | Percent |
| Thompson Seedless | 169,470 | 68.6 | 179,039 | 75.2 | 185,547 | 81.3 | 178,289 | 86.1 |
| Muscat | 63,214 | 25.6 | 47,510 | 19.9 | 34,807 | 15.3 | 23,943 | 11.6 |
| Sultana | 9,814 | 3.9 | 7,186 | 3.0 | 3,868 | 1.7 | 2,798 | 1.4 |
| Zante currant | 3,323 | 1.4 | 2,763 | 1.2 | 2,252 | 1.0 | 1,939 | .9 |
| Other | 1,377 | .5 | 1,696 | .7 | 1,593 | .7 | --- | --- |
| Total | 247,198 | 100.0 | 238,194 | 100.0 | 228,067 | 100.0 | 206,969 | 100.0 |

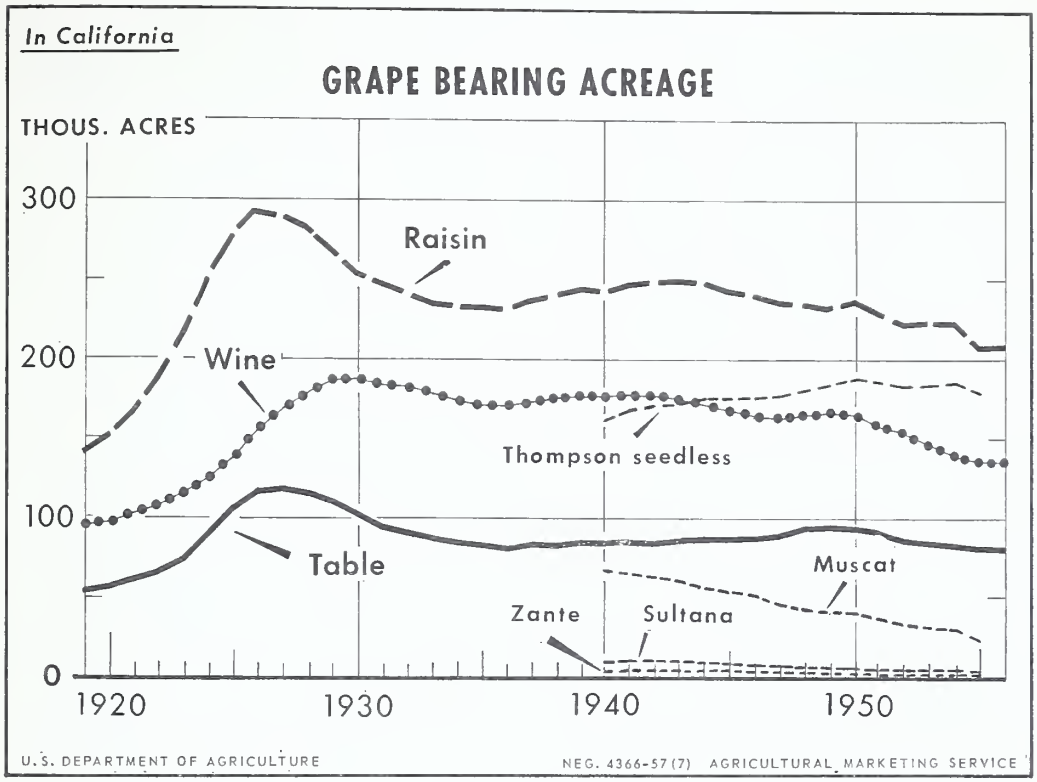


Figure 10

more recent yield increase is associated with the long-term declining acreage, it probably results from declining proportions of young and marginal acreage as well as from more effective production. In the latter period the trend of yield increased from 4.6 tons per bearing acre in 1932 to 7.4 tons in 1955. On an industry-wide basis, the increasing trend of yields means that a typical acre of vineyard standing in 1955 has 60 percent more capacity to produce raisin grapes than a typical acre standing in 1932.

Table 24.--Rate of change per decade in yield per bearing acre for raisin, table, and wine variety grapes, selected periods, 1919-55

| Period | Raisin variety | Table variety | Wine variety |
|---|---|---|---|
| | Tons | Tons | Tons |
| 1919-32 | -0.4 | -0.5 | -1.4 |
| 1932-55 | +1.2 | +1.7 | +.7 |